

REMARKS

Claims 1-19 are pending in the current application. In an Office Action dated February 7, 2007 ("Office Action"), the Examiner rejected claims 1-19 under 35 U.S.C. § 101. Applicant respectfully traverses these rejections.

First, Applicant's representative has amended claims 1, 4, 10, 13, and 19 to more particularly point out and distinctly claim that which Applicant regards as his invention. Claim 1, for example, now reads:

1. A multiple-precision, multiply-and-add computer operation for multiplying together a first operand with a second operand, at least one of the first and second operands having more than one natural word, and then adding an addend operand to the product of the first and second operands to produce a final result that is written into a multiple-natural-word-containing result vector, the multiple-precision, multiply-and-add operation comprising:

the a first operand;
the a second operand;
the ~~an~~ addend operand;
the a result vector; and
for each natural word of the second operand,

a block of *multiply-and-add* instructions that multiply the natural word of the second operand by all natural words of the first operand and store results of the multiply-and-add instructions as intermediate results, the block of *multiply-and-add* instructions that multiply the first natural word of the second operand by all natural words of the first operand additionally adding a number of initial natural words of the addend operand to the products of the first natural word of the second operand and all natural words of the first operand, the block of *multiply-and-add* instructions containing no write dependencies.

Claim 1 is directed to a computer operation, implemented as a series of processor instructions, that implements a multiple-precision, multiply-and-add operation. The computer operation is, as discussed in the current application, far more efficient than currently-available multiple-precision, multiply-and-add operations. Currently available multiple-precision, multiply-and-add operations, as discussed beginning on line 26 of page 10 of the current application, are implemented such that many write dependencies between instructions prevent effective use of parallel instruction execution. The multiple-precision-multiply-and-add-operation embodiments of the present invention eliminate write dependencies within instruction blocks, allowing for parallel execution of

multiple instructions to provide far greater computational efficiency.

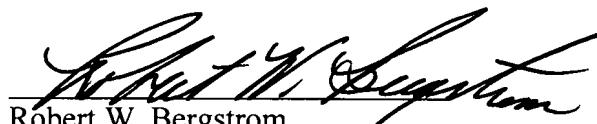
The Examiner appears to suggest that the currently claimed invention is not a practical application, that the currently claimed invention does not produce a useful, concrete, and tangible result, and that "claims 1-9 and 19 clearly cover a mere computer software/program without embodied in a computer readable storage medium, and thus is as non-statutory subject matter as being a software/program per se." Applicant's representative respectfully disagrees. A new multiple-precision, multiply-and-add operation that allows for great parallelism in instruction execution and uses fewer processor instructions can enormously increase the speed of a wide variety of computer applications that rely on multiple-precision, multiply-and-add operations, including modern cryptography-based applications fundamental to security and authentication within Internet-based communications and transactions. Many issued patents are directed to improved computer processors and methods that provide for faster and more efficient computation, and much of the research and development efforts undertaken in the computer industry are devoted to increasing the speed and efficiency of computations. Faster execution of cryptography routines, for example, increases the number of transactions that can be executed per second on a given computer system, thereby deceasing the hardware costs for supporting transaction systems.

The result of the multiple-precision, multiply-and-add operation of the present invention is eminently useful, and does produce a concrete and tangible result. Such operations produce results that are stored in registers and/or memory locations, and necessarily involve a physical transformation in order for the results to be stored, as clearly claimed in the current claims. Were there no physical transformation, no results could be stored. The Examiner's justification that "claims 1-9 and 19 clearly cover a mere computer software/program without embodied in a computer readable storage medium, and thus is as non-statutory subject matter as being a software/program per se" has no basis in current case law or statute. There is no requirement for storage of a computer program in a computer readable storage medium for patentability. While it is true that claims directed to computer instructions that carry out a novel method stored in a computer readable storage medium are allowable, there is no requirement that all

computer-related invention comprise computer instructions stored in a computer readable storage medium. Furthermore, the multiple-precision, multiply-and-add operation of the present invention, like basic, processor-supplied instructions, is used by many different types of software programs and routines, and generally facilitates development and execution of software programs. The Examiner's statement that "there is no practical application of the multiply-and-add operation recited in the claim" is without justification, and is clearly unjustifiable, since much design effort and research has been directed to producing computer processors that provide multiply-and-add operations, as discussed beginning on line 12 of page 2 of the current application, and multiple-precision, multiply-and-add operations are fundamental to many modern cryptographic methodologies, as discussed beginning on line 24 of page 3 of the current application. Processor manufactures would not design processors to provide multiply-and-add operations were they not useful.

In Applicant's representative's opinion, all of the claims remaining in the current application are clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,
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